The paper indicates very clearly the necessity of physicians carrying out these measurements in their own regions if they wish to prescribe heliotherapy intelligently. It is shown that the average concentration of ultraviolet may be quite different in places comparatively close together, and also that "the hours of sunlight" or the "intensity or heat of the sun" are poor indicators for use in light therapy.

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Lois Godfrey, M. S. (Wakefield Building, Oakland). Doctors Frawley and Brown, in this work, have most ingeniously overcome the difficulties inherent in the method. The filtering out by the plain glass tube of wave-lengths longer than 320 mu mu, so that there remains a measure of the therapeutic wave-lengths, and the adoption of standard procedure for cleaning the tubes (the method being sensitive to extremely small impurities) make this a highly acceptable method for comparative measurements. The other recognized source of error, a significant temperature coefficient, would make the results and conclusions even more striking; undoubtedly, as between the two observation localities, Fresno has consistently the higher temperature. Hence, if temperature correction could be applied, the Fresno readings would be lower and the differences even greater.

There is a popular idea that in a "sunny" climate, such as California's, it is unnecessary to supply an additional dietary source of vitamin D. These results show that this is quite definitely not the case except in favored localities such as Auberry. The results sustain also the conclusion, from my study in Honolulu and from other studies elsewhere, that the therapeutic value of sunlight cannot at all be gauged from hours of sunlight and other observations routinely made by weather bureaus. As Frawley and Brown suggest, and as was noted in Honolulu, "visibility" high when the mountains are in view from Fresno is the most easily observed *significant* condition. Such work as this, therefore, would seem to be of great value.

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Doctor Frawley (closing).—The study of the ultraviolet component of the sunlight in Central California was the outcome of a suggestion by Dr. H. F. Helmholz of Rochester, Minnesota. Doctor Helmholz thought that it would be interesting to make a survey of the amount of rickets present among the babies in this region, which is noted for the long hours and the intensity of its sunlight.

Examination of the children in the Red Cross and the Fresno County Hospital Infant Welfare clinics, over a period of three years, revealed a surprisingly large proportion of children with mild rickets. In order to find an explanation for this paradoxical situation, a study of the ultraviolet in the sunlight was instituted. The results obtained in this study furnish an adequate explanation of the presence of rickets in this locality.

COMPULSORY HEALTH INSURANCE*

By Frederick L. Hoffman, LL. D.
Philadelphia, Pa.

II

THE literature on compulsory health insurance has reached enormous proportions, and even a lifetime would not suffice for a critical study and analysis of its many provisions, rules and regulations in their effects upon medical practice and the national welfare. Essentially it is not *insurance* in the universal and accepted sense of the term but, rather, a method of social relief closely interwoven with poor laws reform. No system anywhere pretends to be actuarially solvent, but the taxpayers' resources are available to meet deficiencies in income whenever required, and they are often heavily called on.

ORIGIN OF COMPULSORY HEALTH INSURANCE SYSTEM

The system had its origin in Germany, dating back to 1881 when Prince Bismarck realized the political necessity of meeting the demands of the increasing powers of the socialists for more adequate support of the much underpaid wage workers of Germany, growing restless under the rising costs of living and the inadequacy of the prevailing standards of living.

Being largely political in its origin the interests of the medical profession were, generally speaking, ignored, and scant attention was paid to its representatives with due consideration to professional ethics. The general tendency everywhere has been to limit the professional rights of the doctor, and as observed by the author of "This Panel Business": "There was at present a movement to extend the income limit of those entitled to insurance and at the same time to limit the total amount which any doctor can receive out of the funds." The medical profession of Germany is on record as having declared its position "to be extremely serious for the profession," and like problems have arisen in every other country where social insurance has been established. It starts invariably with a relatively small proportion of wage workers with incomes below the level of comfortable subsistence, but this is soon increased to include other wage-earning groups until gradually the entire wage-earning population, and even a considerable proportion of salaried persons, are included. The larger the proportion, of course, the narrower the sphere of private practice which everywhere has been injured to a measurable degree.

ALLOWANCES TO PHYSICIANS

Coincident with this development has been a demand for a reduction in doctors' allowances tending more and more toward a salary basis inconsistent with the highest degree of professional development. With reference to Germany, where the doctor's position has become extremely serious, it is observed: "The prevailing financial depression was leading to strong demands for cutting down medical remuneration, and politics and health insurance were so inextricably mixed that the interests of medicine tended to be swamped."

EFFECT UPON THE PANEL PATIENT

One of the most impressive discussions on this phase of the subject is a book by Dr. Erwin Liek on "The Doctor's Mission," which fortunately has been translated into English. Doctor Liek, himself, started his professional life as a panel doctor and at the outset was firmly convinced that social

* One of a series of articles on compulsory health insurance, written for California and Western Medicine by the well-known consulting statistician, Frederick L. Hoffman, LL. D. Article I of the series was printed in the April issue, page 245.

insurance was of the greatest utility. He acquired a very large panel practice and had abundant opportunity to gain a wealth of practical experience. He speaks of the disadvantage for the sick as being chiefly the following: "In the first place, the natural relations between doctor and patients are destroyed. Entire confidence between the two is lacking. Between the patient and the doctor stands the bureaucratic administration. A person who is sick must first appeal to the employer, then he has to apply to some official and at last he goes to the doctor. This complicated course may be unimportant in case of an injury, let us say a broken bone, but this procedure is troublesome in the innumerable disorders which affect both body and mind. For many patients it is an exceedingly depressing thing that they are not merely Mr. or Mrs. So-and-so who is sick, but that they are booked by the bureaucratic machinery as No. 17,469,434. Medical secrecy, as observed by every doctor, is destroyed where there is social insurance. On every document the name of the disease is written and many of the organizations do not allow the name of the disease to be given in Latin."

INDUCES NEURASTHENIA AND MALINGERING

But this is not all. Doctor Liek enumerates further disadvantages for the sick, including the undermining of the manliness of the people, causing their physical and moral degeneration. He remarks in this connection, "If we go through the case-books of panel doctors, we find that they are overwhelmed with ridiculous trivialties and that panel doctoring produces and carefully nourishes general neurasthenia and hypochondriasis. Colleagues of mine, highly experienced in panel practice, tell me that two-thirds of the activities of panel doctors are superfluous. In Poland, where social insurance is flourishing, the disease statistics have a special column of cases superscribed 'nihilitis.'"

Liek also quotes Doctor Balmer to the effect that "the percentage of malingerers convicted of having shammed sickness rose from 2.8 per cent in 1909 to 8.3 per cent in 1922." On the other hand, he points out, "It is found that the health and healing capacity of individuals marvelously increase when they can no longer rely upon social insurance." As a matter of fact, "Sickness insurance has become a source of income to the workers in case of unemployment and distress. It need scarcely be pointed out that the misuse of social insurance, its use for obtaining not health but doles from the community, causes grave mischief."

ANOTHER BAD FEATURE

Equally suggestive are the conclusions of Dr. William A. Brend, published in his treatise on "Health and the State" in 1917. These conclusions apply to England and Wales chiefly, and reflect present-day conditions, if not more so, than the described situation many years ago.

By making the status of the doctor both political and economic in relation to his income and security, his professional status has been measurably undermined. The doctor's duty to furnish a certificate of illness as a prerequisite to the drawing of cash benefits on the part of the insured has given him a power bound to be abused to an enormous extent. If he refuses to certify the patient as being sick and therefore unable to work, he loses prestige with his panel clientage and his patients have themselves transferred to more tolerant panel doctors. As observed in the book on "This Panel Business": "The doctors everywhere are being attacked for giving certificates too easily. Medical remuneration is being cut down, and many doctors are not earning enough to keep themselves alive."

ILL-EFFECTS UPON RISING GENERATION OF PHYSICIANS

In most countries at the present time there is a plethora of medical men all eager to seek a connection that will provide a living income. Probably never in the history of medicine has the doctor's economic position been as trying as it is now. There is everywhere a large number of new doctors being graduated who seek entrance into the profession for medical practice. Each and all must maintain a social position which involves the necessity of an adequate income which is rarely forthcoming in the case of young doctors who are confronted by well-established private practices on the one hand and panel practice on the other. Since panel practice provides a fairly definite amount of income from the start they are eagerly sought by young physicians who are untrained in the ethics of the medical profession and, therefore, more tolerant with the patients in the granting of certificates, in many instances not justified by the actual physical condition of the patient.

SOME GERMAN STATISTICS ON MALINGERING

Doctor Liek, under date of July, 1927, quotes some extremely interesting observations which I give in full as a practical illustration of the present status of social insurance in Germany, although probably in the meantime conditions have possibly grown worse.

"We have before us statistics published by the Central Organisation of German sickness insurance societies which represents the vast majority of the German local organisations, and which relate to the year 1926. These statistics are published with regard to 1,036 local organisations comprising 9,127,254 insured people. We would draw attention to the following point to start with. With regard to the reëxamination of those who had stated that they were sick and required sick-pay the following extraordinary facts have emerged, which are apt to depress every fair-minded reader. In the case of 778 local organisations, with 7,918,432 insured members, 1,259,016 declared in 1926 that they were incapacitated through sickness and were invited to undergo a reëxamination after the granting of a sickness certificate by the panel doctors. In the case of no less than 60 per cent of the insured workers reexamination by an independent doctor was called for. Of these 1,259,016 people who pretended that they were incapacitated through illness, no less than 198,142 immediately announced that they were well and that no further examination by an independent doctor was

called for. A further army of 219,913 declared to the reëxamining doctor that they had suddenly become quite well. Of the remaining number, 292,133 workers who had pretended to be incapacitated were found on reëxamination to be able to work. In other words, out of the 1,259,016 nominally incapacitated workers no less than 710,183, or 56.5 per cent, were quite able to work. It is quite superfluous to comment on these figures."

It is explained in this connection that "as a rule only those patients are asked to undergo a reexamination who arouse doubt as to whether the statements they made to the panel doctor were justified. From the amazing figures given it becomes apparent that the community is exploited by workers shamming sickness to an enormous extent. It has often been pointed out that the sickness insurance organizations become mere dole payers as soon as a period of unemployment begins." This has been the experience in other countries for which the data are available, the discovery of malingering depending largely upon the economic situation. The poison generated by this condition reacts disastrously on many members of the medical profession who must needs place their economic necessity above professional ethics. While enormous sums are squandered going to those who are not really ill but only pretending to be so, the patient actually in need of qualified care fails to receive it. As said by Liek, "Those who are really ill do not receive justice under the present arrangements. The panel doctors are so wretchedly paid that they cannot possibly make a living for themselves and their families unless they undertake mass treatment. I know doctors who every day see 50, 60, 100 or 200 panel patients during their brief consulting hours. Under these circumstances it is unavoidable that both doctors and patients are injured. I personally find that I have amply enough to do if during my consulting hours I examine and advise ten or twelve patients."

AUTHOR'S PERSONAL OBSERVATIONS IN ENGLAND

In my personal studies of the subject in England in 1919, I visited many panel practices and had an opportunity to observe for myself the scant consideration given to the actual needs of the patient for a thorough preliminary examination to justify a definite diagnosis.

According to Dr. Alfred Cox of the British Medical Association, "the facts given and the tendencies shown make it certain that there is a real public danger in most countries, due to the oversupply of doctors, and that if it be not checked the medical organizations are likely to find themselves powerless to exercise any control over methods of practice, over professional ethics, or standards of remuneration. The danger, of course, applies to every profession, as since the war an increasing proportion of young people have been educated to a higher standard than before, and they look to the professions as their natural means of making a living."

(To be continued)

THE LURE OF MEDICAL HISTORY*

BUBONIC PLAGUE CONTROL IN CALIFORNIA IN 1903†

ORIGIN OF RATPROOFING AS A CONTROL MEASURE

By RUPERT BLUE, M. D., D. P. H.
Washington, D. C.

IN 1903 a new method of plague control was adopted by the health authorities in San Francisco. This action was deemed advisable because no appreciable effect had been made upon the progress of the disease by the use of the ordinary control measures. Moreover, it was believed that certain advances had been made in the study of epidemiology which justified the change, though these advances had not been generally accepted at the time.

It will be recalled that prior to 1903 antiplague work was based upon the theory of direct transmission from man to man, and the old method of combating disease by disinfection, isolation and quarantine was employed wherever human cases occurred. Furthermore, the rôle assigned to the rat in the spread of the disease had not been approved, nor had the insect transmission from rat to rat been demonstrated. In fact, it was denied as late as 1905 by observers who had failed to convey the infection by the use of biting insects.

Although Gauthier and Raybaud asserted as early as 1902 that certain fleas removed from rats readily feed upon man under experimental conditions, the consensus of scientific opinion was opposed to that view. At any rate, there was much doubt existing among public health workers as to the value of certain epidemiological factors until 1906, when the British Plague Commission published its full report on the work in India.

Notwithstanding this divergence of opinion concerning the mode of transmission of plague, the Federal health officer in San Francisco decided to throw the burden upon the rat, and to base the campaign upon rodent eviction and eradication. Since the old method had failed to influence the course of the disease, it was necessary to devise and put into effect new measures or admit that they were unable to cope with the situation.

It will be seen from the above that the plan called for a reversal of the order of precedence among the factors concerned in the spread of plague. Man was no longer to be held responsible for the crime. In other words, it was a new orientation of the problem whereby isolation and quarantine, if practiced at all, would be applied to the potential rodent carrier.

* A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellany Department of CALIFORNIA AND WESTERN MEDICINE, and its page number will be found in the front cover index.

† This article was submitted to the editor of CALIFORNIA AND WESTERN MEDICINE several years ago, when Surgeon-General Blue was on detail at Los Angeles, to aid in securing the passage of a rat-proofing building ordinance. It is printed in the Lure of Medical History department because of its historical and other value.